

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1-11. (Canceled)

Claim 12. (Currently Amended) [Use according to Claim 11] The method of claim 30, wherein all the amino acids of the compound are D-isomers.

Claim 13. (Currently Amended) [Use according to Claim 9] The method of claim 30, wherein Y' is Lys.

Claim 14. (Currently Amended) [Use according to Claim 13] The method of claim 30, wherein Y' is Lys and Z' is Phe.

Claim 15. (Currently Amended) [Use according to Claim 11] The method of claim 30, wherein Y' is Phe.

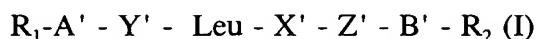
Claim 16. (Currently Amended) [Use according to Claim 11] The method of claim 30, wherein X' is Val-Val.

Claim 17. (Currently Amended) [Use according to Claim 11] The method of claim 30, wherein R₁ is acetyl.

Claim 18. (Currently Amended) [Use according to Claim 11] The method of claim 30, wherein R₁ is H or R₂ is H.

Claims 19-26. (Canceled)

Claim 27. (New) A method for treating or preventing demens in a patient having Downs syndrome comprising administering to the patient in need thereof an effective amount of a compound according to formula



in which X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in β amyloid peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R₁ is H or -CO-R₃ bonded at the α -amino group of A';

R₂ is H, -OR₄ or NR₅R₆ all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

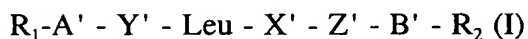
R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

R₅ and R₆ independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are -(CH₂)_n-, where n is 4-5;

R₁ and R₂ together can form a hydrocarbon ring or heterocyclic ring; and

all the α -amino acids can be either D- or L-isomers.

Claim 28. (New) A method for treating or preventing hereditary cerebral hemorrhage associated with amyloidosis (Dutch type) comprising administering to a patient in need thereof an effective amount of a compound according to formula



in which

X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R₁ is H or -CO-R₃ bonded at the α -amino group of A';

R₂ is H, -OR₄ or NR₅R₆ all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

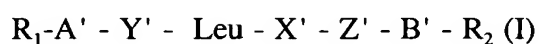
R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

R₅ and R₆ independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are -(CH₂)_n-, where n is 4-5;

R₁ and R₂ together can form a hydrocarbon ring or heterocyclic ring; and

all the α -amino acids can be either D- or L-isomers.

Claim 29. (New) A method for preventing fibril formation of human amyloid protein in a patient in need thereof comprising administering to said patient an effective amount of a compound according to formula



in which

X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R₁ is H or -CO-R₃ bonded at the α -amino group of A';

R₂ is H, -OR₄ or NR₅R₆ all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

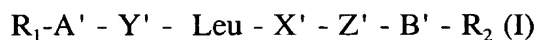
R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

R_5 and R_6 independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are $-(CH_2)_n-$, where n is 4-5;

R_1 and R_2 together can form a hydrocarbon ring or heterocyclic ring; and

all the α -amino acids can be either D- or L-isomers.

Claim 30. (New) A method for inhibiting polymerization of an amyloid β peptide in a patient in need thereof comprising administering to said patient a therapeutic effective amount of a compound having formula



in which

X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R_1 is H or $-\text{CO}-R_3$ bonded at the α -amino group of A' ;

R_2 is H, $-\text{OR}_4$ or NR_5R_6 all bound to the α -carboxyl group of the α -carboxyterminal of B' ;

R_3 is a straight or branched carbon chain of 1-4 carbon atoms;

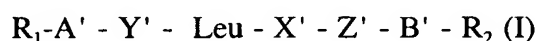
R_4 is a straight or branched carbon chain of 1-4 carbon atoms;

R_5 and R_6 independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are $-(\text{CH}_2)_n-$, where n is 4-5;

R_1 and R_2 together can form a hydrocarbon ring or heterocyclic ring; and

all the α -amino acids can be either D- or L-isomers.

Claim 31. (New) A method for treating or preventing Alzheimer's disease or another disease characterized by amyloidosis in a patient in need thereof comprising administering to said patient a therapeutic effective amount of a compound having formula



in which

X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R₁ is H or -CO-R₃ bonded at the α -amino group of A';

R₂ is H, -OR₄ or NR₅R₆ all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

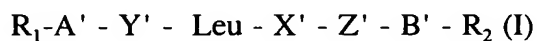
R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

R₅ and R₆ independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are -(CH₂)_n-, where n is 4-5;

R₁ and R₂ together can form a hydrocarbon ring or heterocyclic ring; and

all the α -amino acids can be either D- or L-isomers.

Claim 32. (New) A method for inhibiting polymerization of an amyloid β peptide to a ligand comprising contacting an amyloid β peptide containing environment with a polymerization inhibitory effective amount of a compound according to formula



in which

X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R₁ is H or -CO-R₃ bonded at the α -amino group of A';

R₂ is H, -OR₄ or NR₅R₆ all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

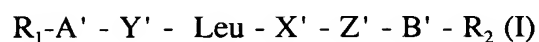
R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

R₅ and R₆ independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are -(CH₂)_n-, where n is 4-5;

R₁ and R₂ together can form a hydrocarbon ring or heterocyclic ring; and

all the α -amino acids can be either D- or L-isomers.

Claim 33. (New) A method for inhibiting polymerization of an amyloid β peptide comprising contacting an amyloid β peptide containing environment with a polymerization inhibiting effective amount of a compound according to formula



in which

X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxy group or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R₁ is H or -CO-R₃ bonded at the α -amino group of A';

R₂ is H, -OR₄ or NR₅R₆ all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

R₅ and R₆ independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are

-(CH₂)_n-, where n is 4-5;

R₁ and R₂ together can form a hydrocarbon ring or heterocyclic ring; and

all the α-amino acids can be either D- or L-isomers.